ELECTRONIC INNOVATIONS IN ACTION

TUBES

—PRODUCT INFORMATION—

6CA11

Compactron Dissimilar-Double-Triode Pentode

• COLOR TV TYPE • FRAME-GRID VIDEO AMPLIFIER • 21200 MICROMHOS
• MULTI-FUNCTION • HIGH TRANSCONDUCTANCE TRIODES

The 6CA11 is a multifunction compactron containing a high-gain, frame-grid video amplifier pentode which is particularly well suited for color television use. It also contains two high-mu, high-transconductance triodes designed for cathode follower and video amplifier applications.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings

Heater Voltage, AC or DC*	6.3±0.6	Volts
Heater Current‡	1.02	Amperes

Direct Interelectrode Capacitances§

Triode (Section 1)

Grid to Plate: (1Tg to 1Tp)	2.7	pf
Input: 1Tg to (1Tk + 2Tk + Pg3 + h + i.s.):	4.7	pf
Output: 1Tp to (1Tk + 2Tk + Pg3 + h + i.s.)	4.0	pf

Triode (Section 2)

Grid to Plate: (2Tg to 2Tp)	2.1	pf
Input: 2Tg to (2Tk + 1Tk + Pg3 + h + i.s.)	2.8	pf
Output: 2Tp to (2Tk + 1Tk + Pg3 + h + i.s.)	2.0	pf

Pentode Section

Grid-Number 1 to Plate: (Pg1 to Pp)	0.13	pf
Input: Pg1 to (Pk + 2Tk + Pg2 + Pg3 + h + i.s.)	12.3	pf
Output: Pp to (Pk + 2Tk + Pg2 + Pg3 + h + i.s.)	4.6	pf

Coupling

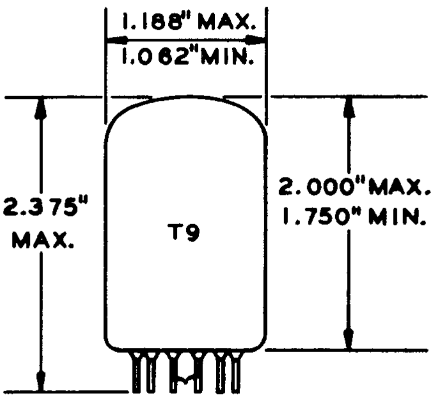
Pentode Plate to Triode Plate (Section 2): (Pp to 2Tp), maximum	0.04	pf
Triode Plate (Section 1) to Triode Plate (Section 2): (1Tp to 2Tp), maximum	0.10	pf

MECHANICAL

Operating Position - Any
Envelope - T-9, Glass
Base - E12-70, Button 12-Pin
Outline Drawing - EIA 9-58

Maximum Diameter	1.188	Inches
Minimum Diameter	1.062	Inches
Maximum Over-all Length	2.375	Inches
Maximum Seated Height	2.000	Inches
Minimum Seated Height	1.750	Inches

PHYSICAL DIMENSIONS

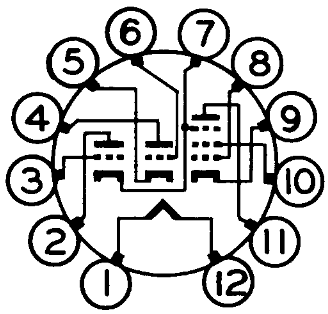


EIA 9-58

TERMINAL CONNECTIONS

Pin 1 - Heater
Pin 2 - Triode Plate (Section 2)
Pin 3 - Triode Grid (Section 2)
Pin 4 - Triode Plate (Section 1)
Pin 5 - Triode Cathode (Section 1)
Pin 6 - Triode Grid (Section 1)
Pin 7 - Triode Cathode (Section 2), Pentode Grid Number 3, and Internal Shield
Pin 8 - Pentode Grid Number 1
Pin 9 - Pentode Cathode
Pin 10 - Pentode Grid Number 2 (Screen)
Pin 11 - Pentode Plate
Pin 12 - Heater

BASING DIAGRAM



EIA 12HN

MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES

Pentode Section

Plate Voltage	330	Volts
Screen Supply Voltage	330	Volts
Screen Voltage - See Screen Rating Chart		
Positive DC Grid-Number 1 Voltage	0	Volts
Plate Dissipation	5.0	Watts
Screen Dissipation	1.0	Watts
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts
Grid-Number 1 Circuit Resistance		
With Fixed Bias	50000	Ohms
With Cathode Bias	100000	Ohms

Triode (Section 1)

Plate Voltage	330	Volts
Positive DC Grid Voltage	0	Volts
Plate Dissipation	1.5	Watts
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts
Grid-Circuit Resistance		
With Fixed Bias	0.5	Megohms
With Cathode Bias	1.0	Megohms

Triode (Section 2)

Plate Voltage	330	Volts
Positive DC Grid Voltage	0	Volts
Plate Dissipation	1.5	Watts
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts
Grid-Circuit Resistance		
With Fixed Bias	0.5	Megohms
With Cathode Bias	1.0	Megohms

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

Pentode Section

Plate Voltage	40	200	Volts
Screen Voltage	120	120	Volts
Grid-Number 1 Voltage	0	---	Volts
Cathode-Bias Resistor	---	65	Ohms
Plate Resistance, approximate	---	490000	Ohms
Transconductance	---	21200	Micromhos
Plate Current	68	27.5	Milliamperes
Screen Current	17.6	4.9	Milliamperes
Grid-Number 1 Voltage, approximate Ib = 100 Microamperes	---	-5.0	Volts

Triode (Section 1)

Plate Voltage	200	Volts
Cathode-Bias Resistor	270	Ohms
Amplification Factor	59	
Plate Resistance, approximate	9200	Ohms
Transconductance	6300	Micromhos
Plate Current	7.6	Milliamperes
Grid Voltage, approximate Ib = 100 Microamperes	-6.3	Volts

Triode (Section 2)

Plate Voltage	200	Volts
Cathode-Bias Resistor	270	Ohms
Amplification Factor	69	
Plate Resistance, approximate	12400	Ohms
Transconductance	5500	Micromhos
Plate Current	7.1	Milliamperes
Grid Voltage, approximate Ib = 100 Microamperes	-5.5	Volts

NOTES

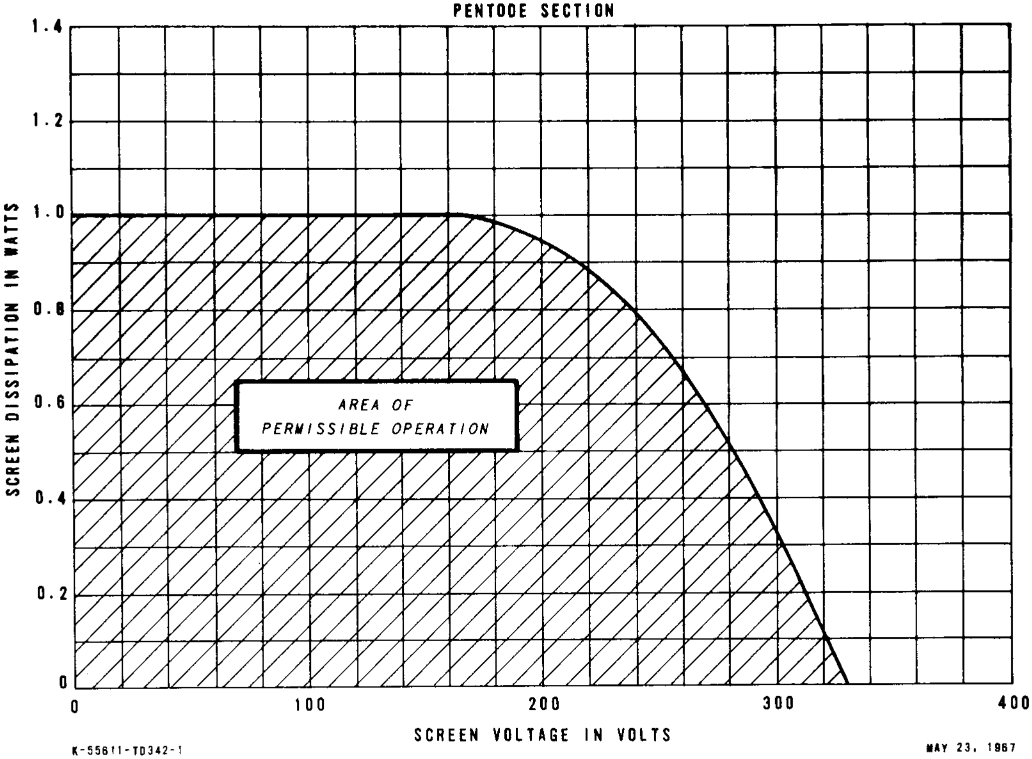
* The equipment designer should design the equipment so that heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance.

‡ Heater current of a bogey tube at Ef = 6.3 volts.

§ Without external shield.

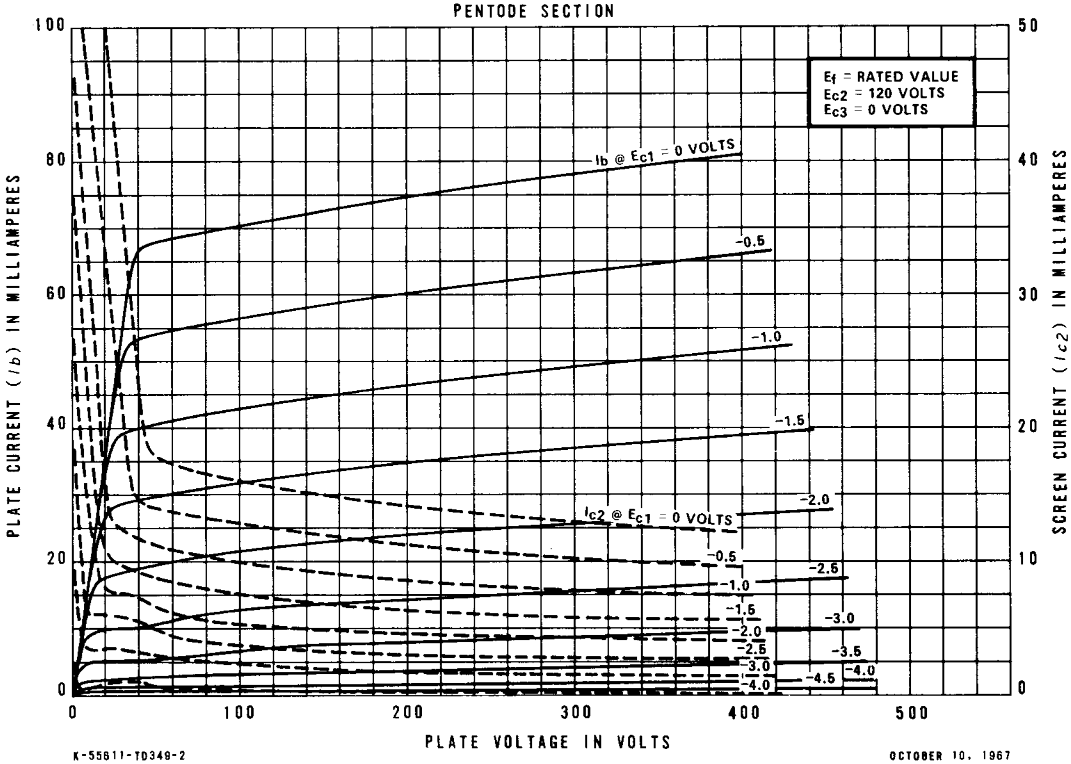
SCREEN RATING CHART

PENTODE SECTION



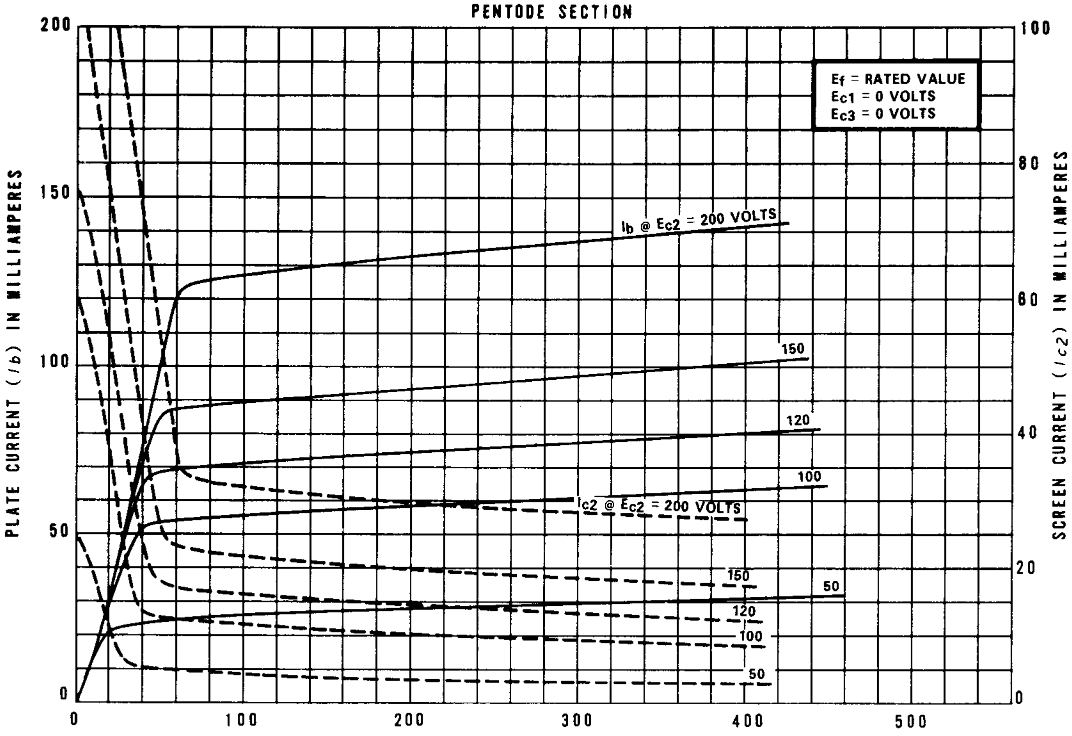
AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION



AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION

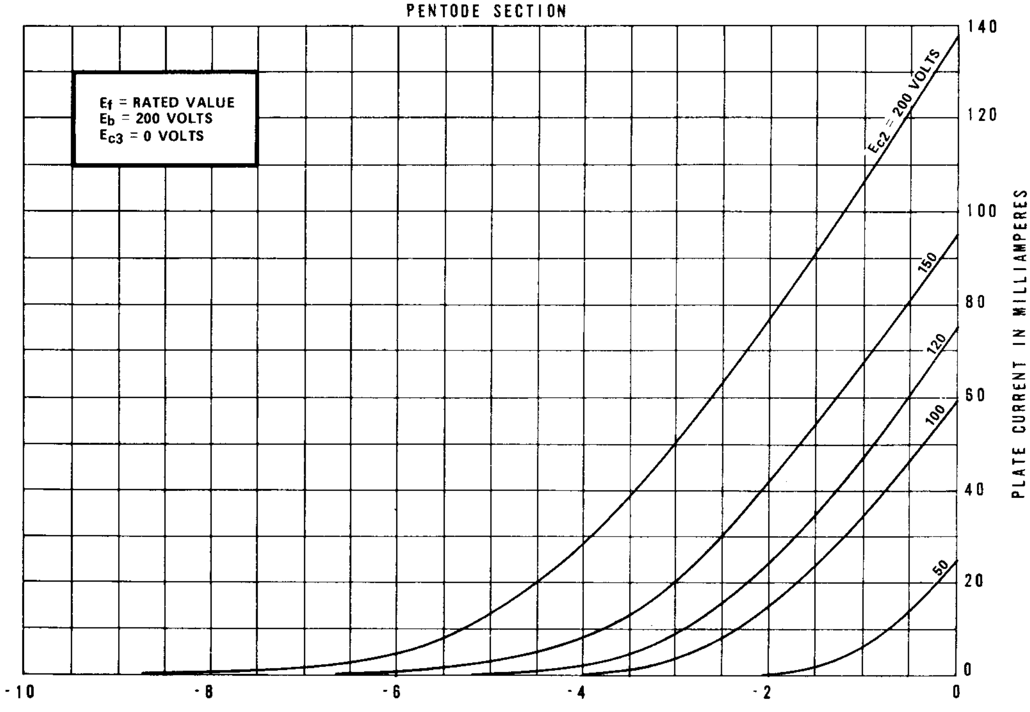


K-55611-TD349-3

OCTOBER 10, 1967

AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION

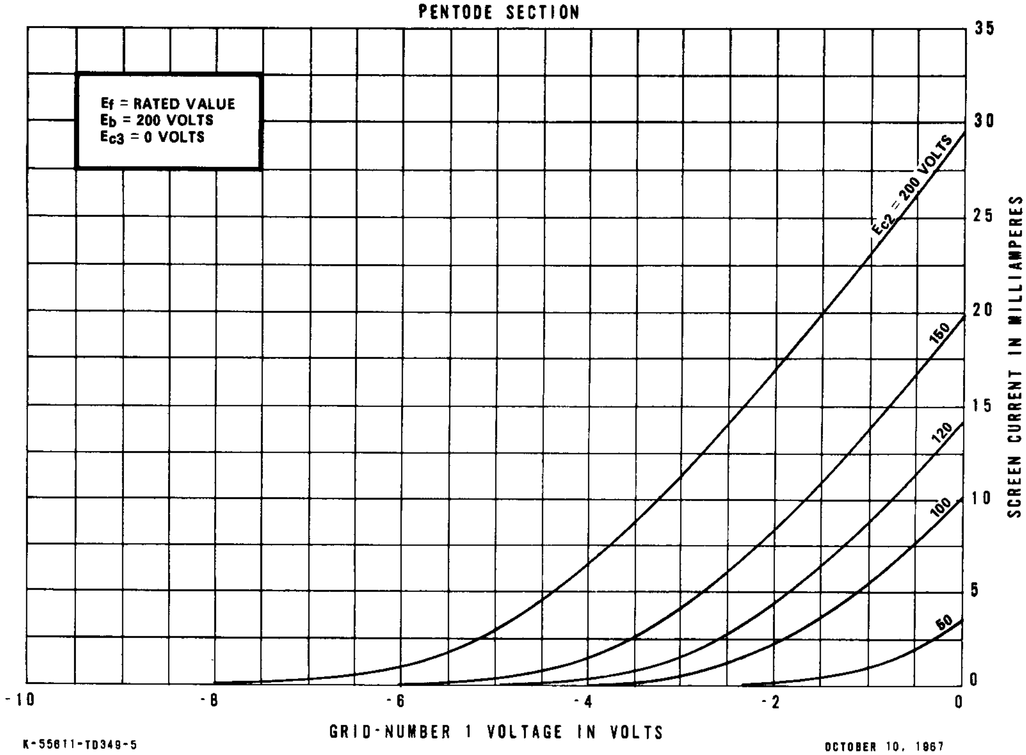


K-55611-TD349-4

OCTOBER 10, 1967

AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION

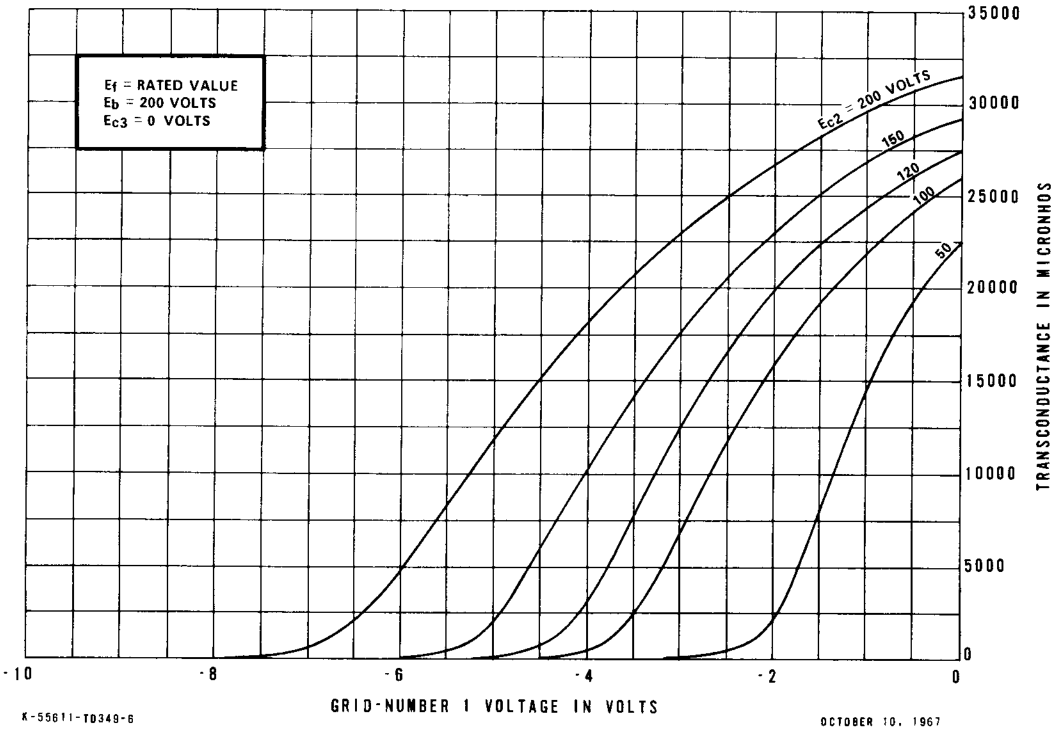


K-55611-TD349-5

OCTOBER 10, 1967

AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION

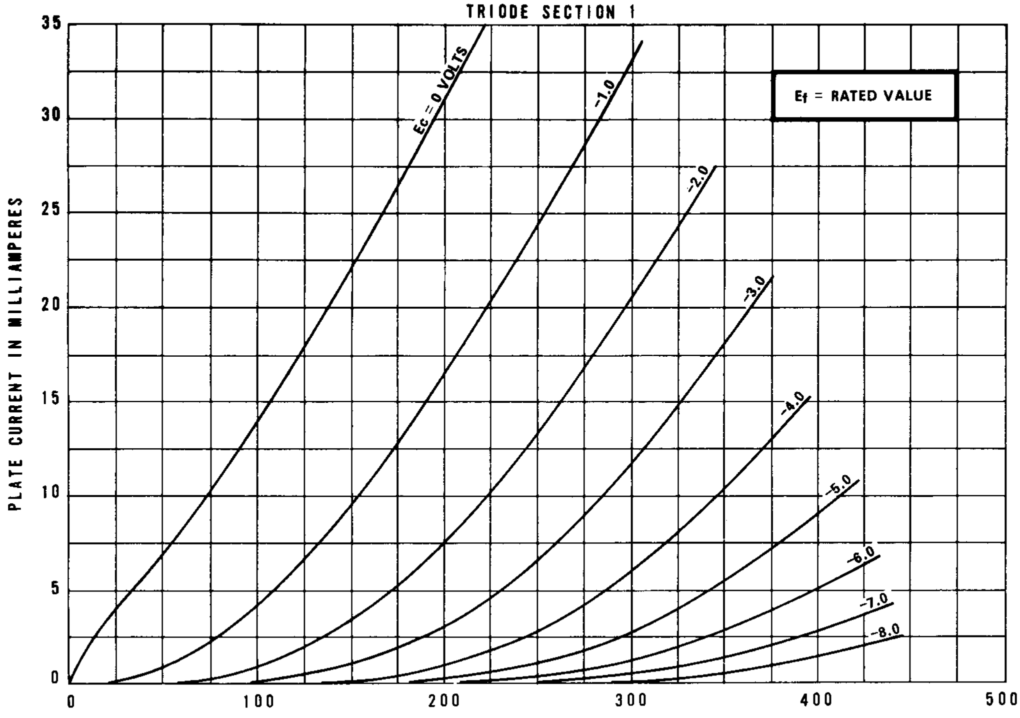


K-55611-TD349-6

OCTOBER 10, 1967

AVERAGE PLATE CHARACTERISTICS

TRIODE SECTION 1

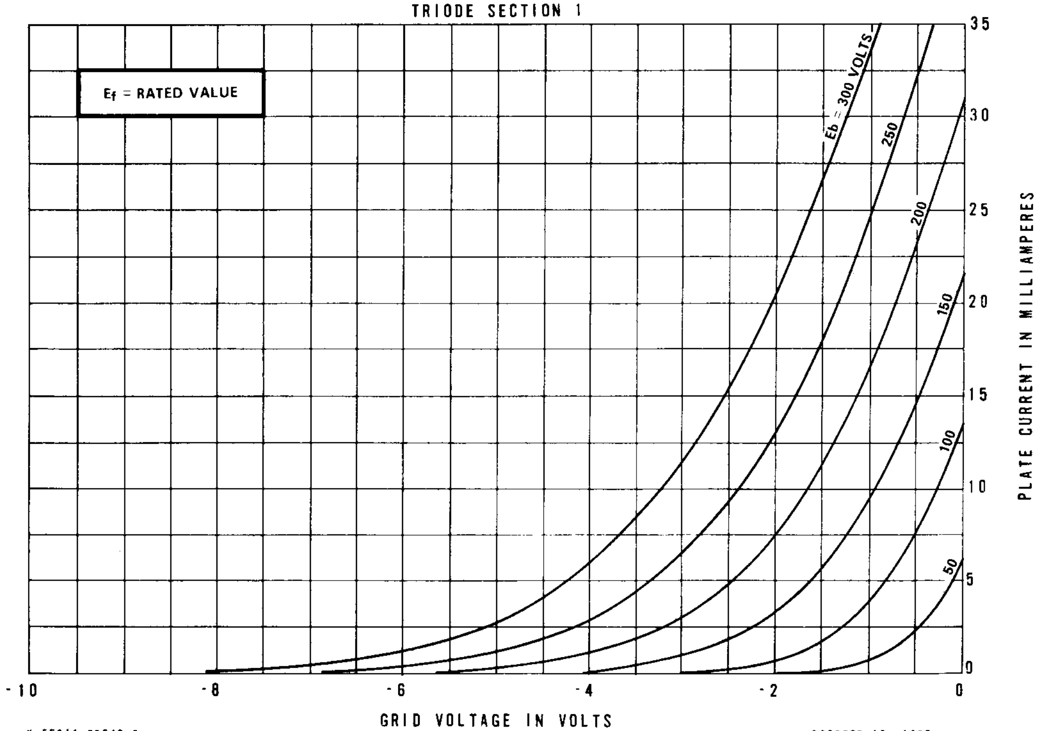


K-55611-T0349-7

OCTOBER 10, 1967

AVERAGE TRANSFER CHARACTERISTICS

TRIODE SECTION 1

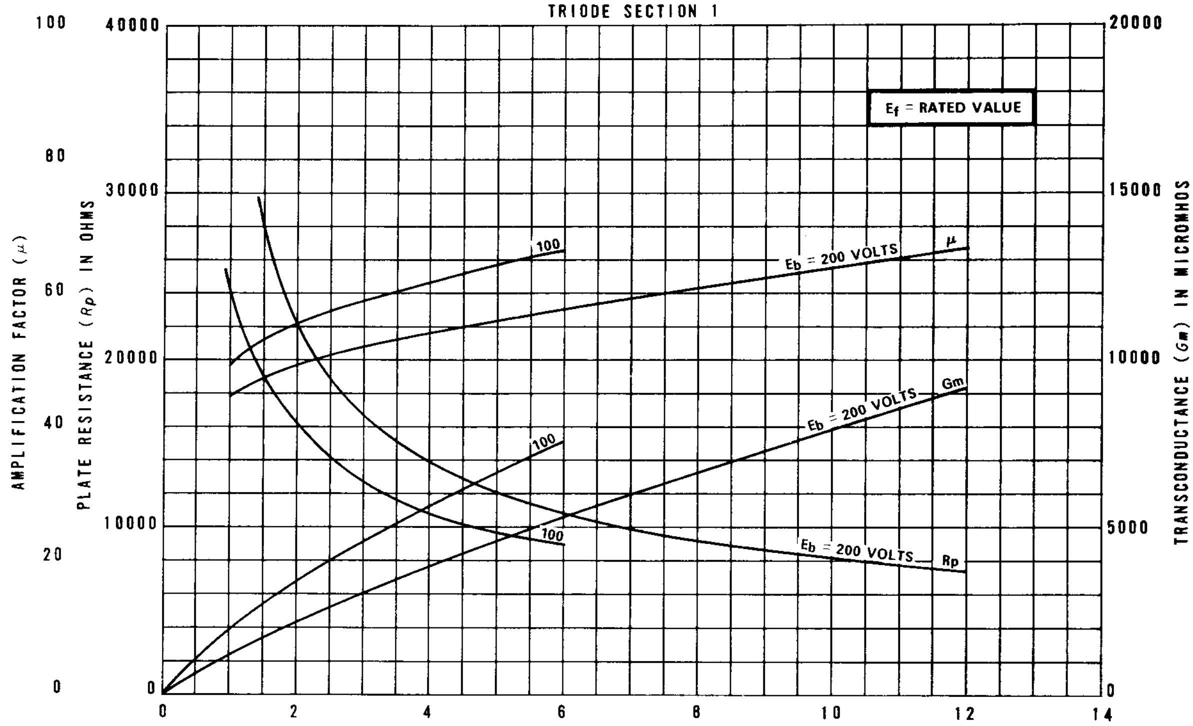


K-55611-T0349-8

OCTOBER 10, 1967

AVERAGE CHARACTERISTICS

TRIODE SECTION 1

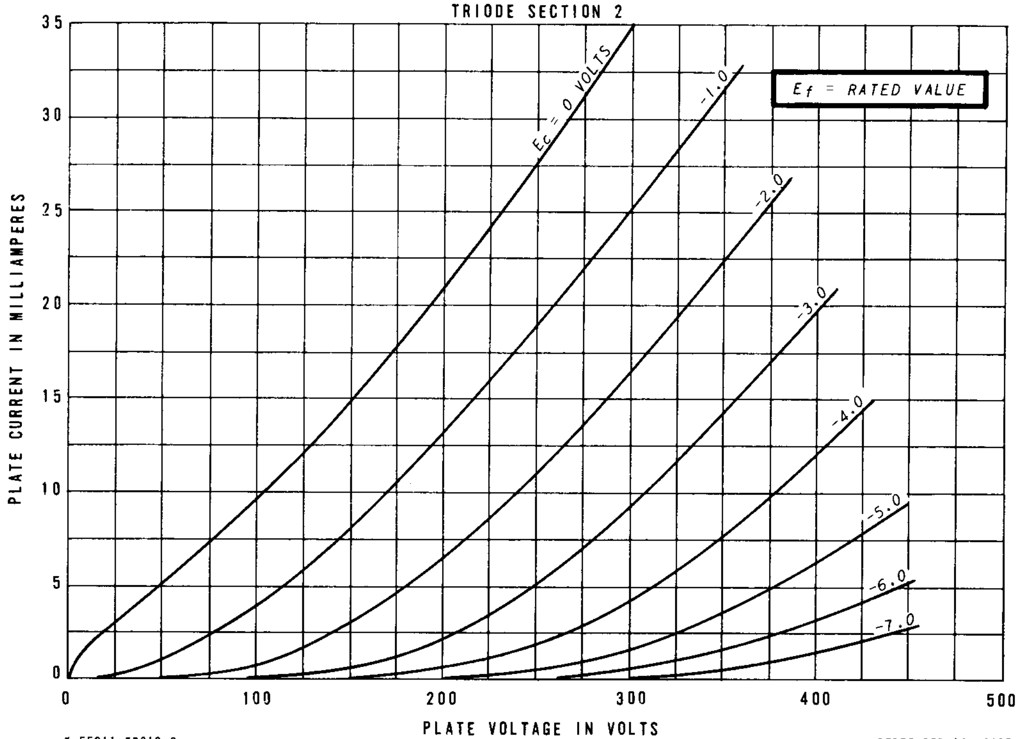


K-55611-TD349-9

OCTOBER 10, 1967

AVERAGE PLATE CHARACTERISTICS

TRIODE SECTION 2

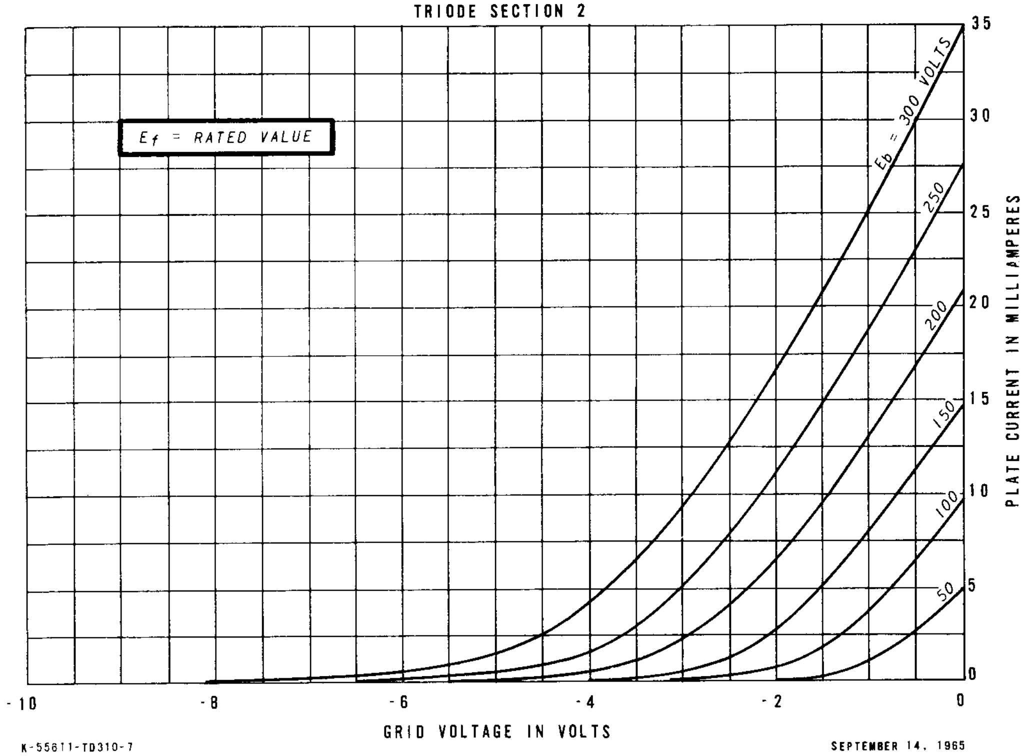


K-55611-TD310-8

SEPTEMBER 14, 1965

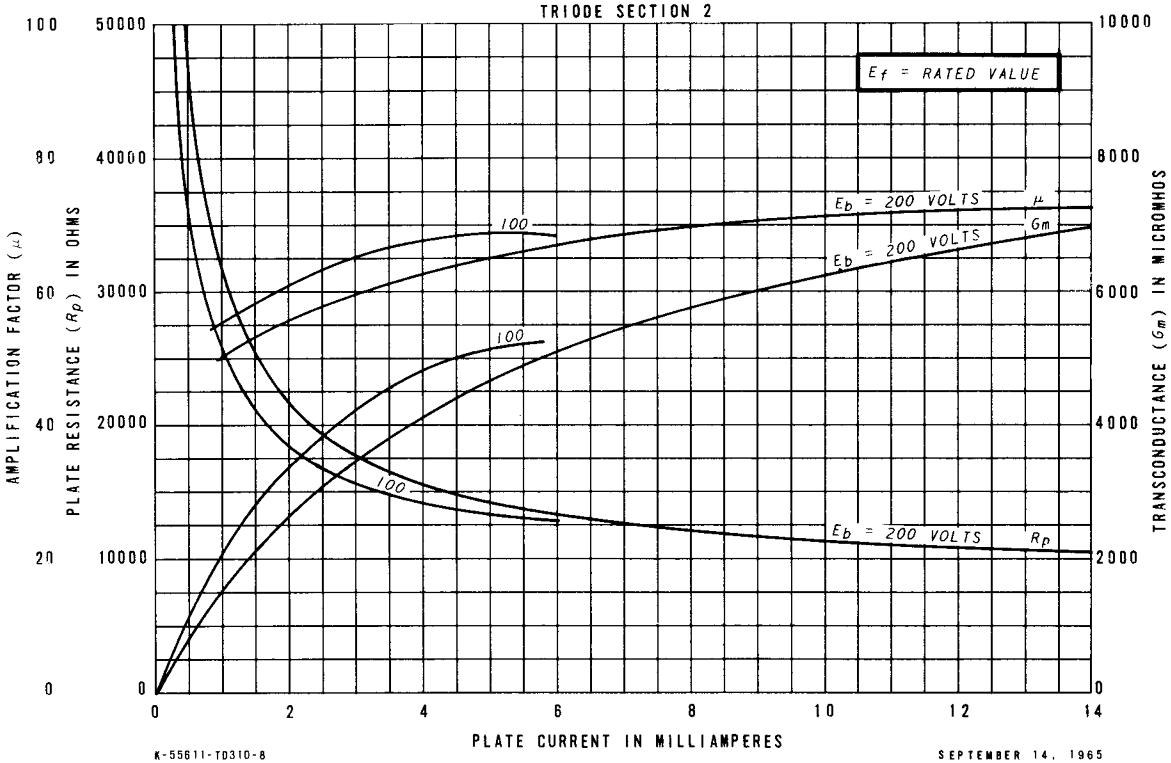
AVERAGE TRANSFER CHARACTERISTICS

TRIODE SECTION 2



AVERAGE CHARACTERISTICS

TRIODE SECTION 2



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